MOST150 C-O Converter - Duplex Variant

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Chapter 1 Preface

1.1 Intended Use

The K2L MOST150 C-O Converter is intended to be used for connecting optical tools or devices to a MOST150 system basing on a coax electrical physical layer (cPHY).

1.2 Scope of Delivery

The delivery covers the following:

- MOST150 C-O Converter
- Specific optical MOST© network cable
- Coaxial cable
- Power adapter cable for use together with OptoLyzer© OL3150o / OptoLyzer MOCCA compact V3.1
- Power supply (optional)

Check your shipment for completeness. If you have any objections direct them to Sales@K2L.de. Providing the delivery note number eases the handling.

1.3 Restrictions

- The MOST150 C-O Converter does not contain any kind of PLL or signal recovery. As a consequence this tool does not completely pass all physical layer compliance tests for a MOST system.
- The MOST150 C-O Converter cannot be used for physical layer tests.
- The MOST150 C-O Converter can only be used for system test setups and demo setups.
- The MOST150 C-O Converter and an optical tool have to be connected directly using a specific optical cable without couplers. The specific optical cable is very short and part of the shipment.

1.4 Definitions of Terms

For better understanding of the following chapters, this section provides explanation to special terms, used in the description of the MOST150 C-O Converter user manual.

Table 1.1 Definitions of Terms

TERM / ABBREVIATION	DESCRIPTION
C-O	Coaxial - Optical
cPHY	coax electrical physical layer
D	Depth
FOT	Fiber Optical Transceiver
H	Height
MOST®	Media Oriented Systems Transport
PLL	Phase-locked loop
VHDL	VHSIC hardware description
VHSIC	Very-high-speed integrated circuits
W	Width

Chapter 2 Introduction

The MOST150 C-O Converter is a small, compact device designated for connecting optical tools or devices to a MOST150 system basing on cPHY. As it has neither firmware nor VHDL inside and there are no additional control elements, the MOST150 C-O Converter is easy to apply.

MOST150 networks can be built up as optical or as coaxial systems. In order to use the features of existing optical-based MOST150 devices also in coaxial systems the MOST150 C-O Converter can be integrated in coaxial systems by just connecting the MOST150 network to the coaxial interfaces of the MOST150 C-O Converter. The optical MOST150 devices can be connected to the optical interface of the MOST150 C-O Converter using the delivered optical MOST network cable. Afterwards the MOST150 devices can be used for developing, testing, or analyzing coaxial MOST150 based multimedia products and systems. The MOST150 C-O Converter indicates both ‘power is connected’ and ‘MOST system signal is detected’.

Two different MOST150 C-O Converter boxes are available, one designated for a simplex MOST150 system and the other for a duplex MOST150 both system basing on cPHY. This user manual describes the MOST150 C-O Converter that is used together with a duplex MOST150 system basing on cPHY.

2.1 Feature Summary

The following list covers the key features of the MOST150 C-O Converter:

- Compact housing
- Easy usage
- Multiple hardware variants available (see homepage: http://www.K2L.de)
- Combined power supply possible for MOST150 C-O Converter and OptoLyzer OL3150o or MOST150 C-O Converter and OptoLyzer MOCCA compact
- No firmware or VHDL inside
- Indication of power detection for both connectors (optical and coaxial)
- Indication of MOST system signal detection for both connectors (optical and coaxial)

2.2 Block Diagram

Figure 2.1 shows the features available for the MOST150 C-O Converter.

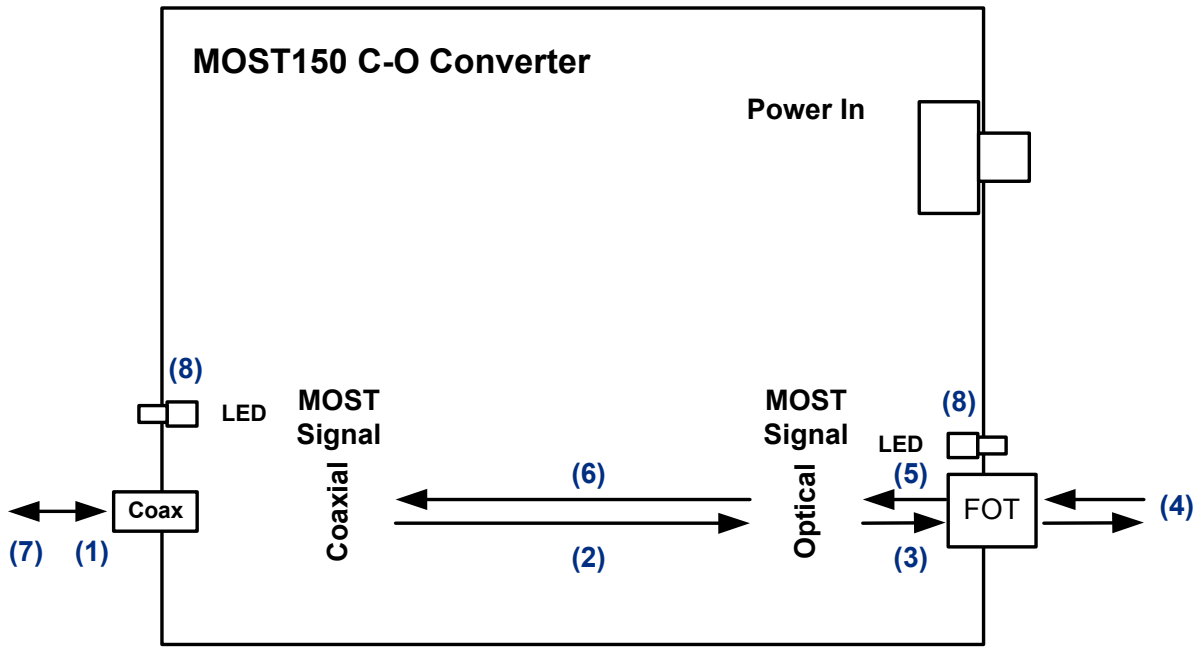

Figure 2.1 Block Diagram

The electrical MOST system signal received via the coaxial cable **(1)** is converted inside the MOST150 C-O Converter **(2)** and sent to a MOST150 device (oPHY) via the FOT **(3)**. This MOST150 device (e.g., an OptoLyzer OL3150o or an OptoLyzer MOCCA compact V3.1) **(4)** processes the optical MOST system signal and sends it back to the MOST150 C-O Converter where it is received via the FOT **(5)**. Inside the MOST150 C-O Converter the optical MOST system signal is converted to an electrical MOST system signal **(6)** and sent via the coaxial cable **(7)** back into the MOST150 system basing on cPHY.

The LEDs **(8)** inform about whether the MOST150 C-O Converter is connected to power or about the detection of a MOST system signal (either optical or electrical).

Chapter 3 Hardware Description

3.1 Coaxial Electrical Panel

Figure 3.1 depicts the coaxial electrical panel of the MOST150 C-O Converter.

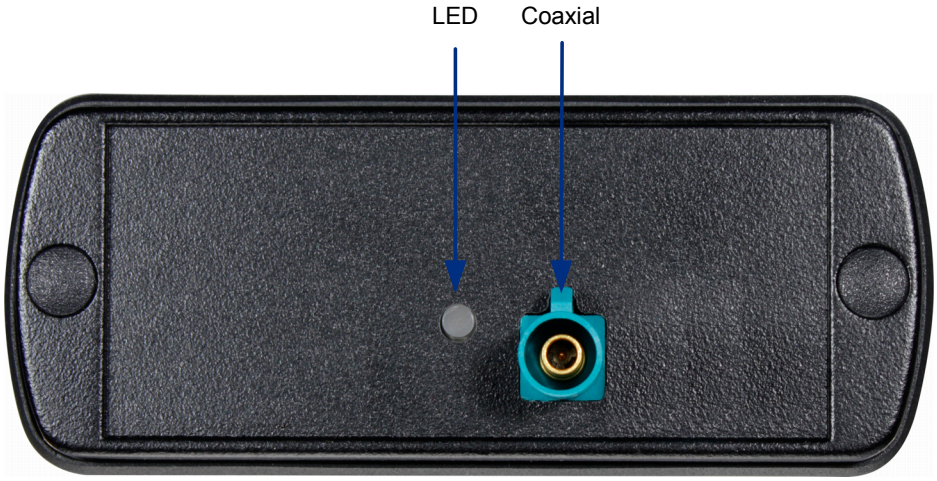

Figure 3.1 Coaxial Electrical Panel

All components of the coaxial electrical panel are described in Table 3.1 from left to right.

Table 3.1 Interfaces on the Coaxial Electrical Panel

INTERFACE	COLOR	DESCRIPTION
LED	Red	MOST150 C-O Converter is powered.
	Green	If the MOST150 C-O Converter is powered and a MOST system signal has been detected in the MOST150 system basing on cPHY, the LED switches to green.
Coaxial	-	Coaxial interface to be connected to the MOST150 system basing on cPHY. For details refer to Section 4.2, "Coaxial Connector," on page 11.

How the MOST150 C-O Converter can be connected is described in Chapter 5, "Typical Use Case - Connection Diagram," on page 12.

3.2 Optical Panel

Figure 3.2 depicts the optical panel of the MOST150 C-O Converter.

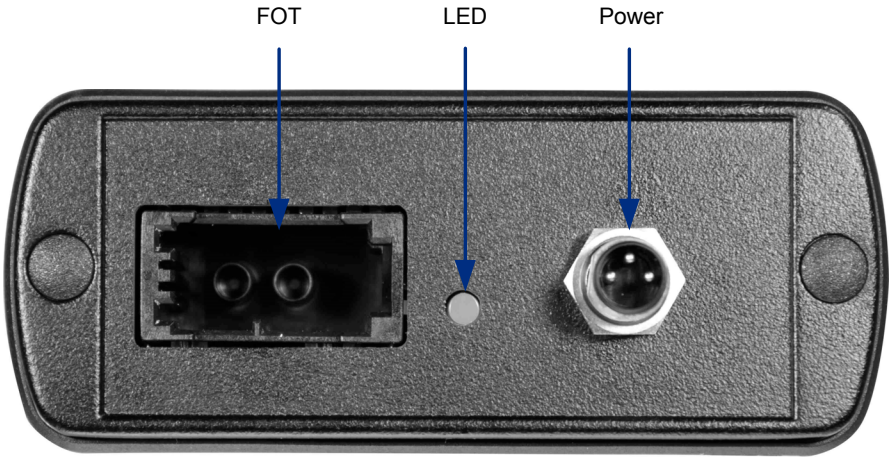

Figure 3.2 Optical Panel

All components of the optical panel are described in Table 3.2 from left to right.

Table 3.2 Interfaces on the Optical Panel

INTERFACE	COLOR	DESCRIPTION
FOT	-	Optical connector. For details refer to Section 4.1, "MOST150 Connector," on page 11.
LED	Red	MOST150 C-O Converter is powered.
	Green	If the MOST150 C-O Converter is powered and a MOST system signal has been detected in the MOST150 optical system, the LED switches to green.
Power	-	12 V power supply. For details refer to Section 4.3, "Power," on page 11.

How the MOST150 C-O Converter can be connected is described in Chapter 5, "Typical Use Case - Connection Diagram," on page 12.

Chapter 4 Pin Assignment of the Connectors

4.1 MOST150 Connector

Connector type: Tyco Micro Pigtail FOT (2+0).

The orientation of the Rx and Tx path is printed on the top.

The MOST150 connector is designated for a 2+0 optical header cable. The direction is visible on the cable:

- Tx: Optical output for MOST network
- Rx: Optical input for MOST network

4.2 Coaxial Connector

Connector type: 59S20X-40ML5-Z FAKRA

4.3 Power

Figure 4.1 shows the pin assignment as it is visible on the rear panel.

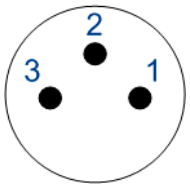

Figure 4.1 Pin Assignment of the Power Connector

Table 4.1 Pinning of the Power Connector

PIN NO.	SIGNAL	DESCRIPTION
1	12 V	Power supply
2	Reserved	-
3	GND	System ground

Chapter 5 Typical Use Case - Connection Diagram

The Figure 5.1 below shows the connection diagram for a typical use case.

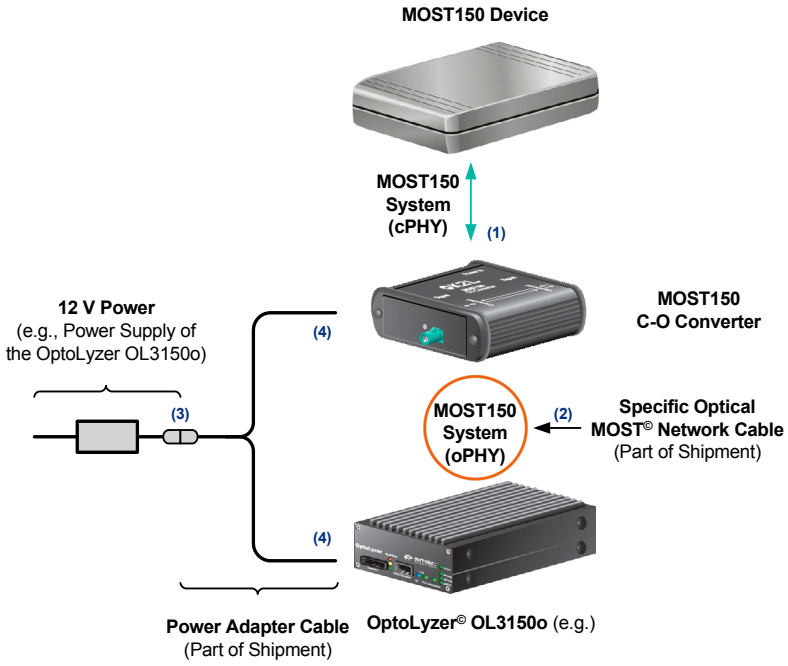

Figure 5.1 Typical Use Case: Connection Diagram

The instructions below describe how the MOST150 C-O Converter must be connected:

1. Power off all devices.
2. Connect the coaxial interface of the MOST150 C-O Converter's coaxial electrical panel to a MOST150 system using the delivered coaxial cable **(1)**.
3. Connect an optical MOST150 device (e.g., an OptoLyzer OL3150o or OptoLyzer MOCCA compact V3.1) to the optical interface of the MOST150 C-O Converter's optical panel using the delivered, specific optical MOST network cable **(2)**.
4. In case an OptoLyzer OL3150o (or OptoLyzer MOCCA compact V3.1) is used as optical MOST150 device, connect the delivered power adapter cable with the power supply pack **(3)** of the OptoLyzer OL3150o (or OptoLyzer MOCCA compact V3.1) as shown in Figure 5.1.
   Alternatively, if neither an OptoLyzer OL3150o nor an OptoLyzer MOCCA compact V3.1 is used, connect a power supply pack that has to be ordered separately (not part of shipment). Proceed with step 6.
5. Connect both OptoLyzer OL3150o (or OptoLyzer MOCCA compact V3.1) **(4)** and the MOST150 C-O Converter **(4)** with the delivered power adapter cable as shown in Figure 5.1.
6. Power the devices.

Chapter 6 Technical Specification

The table below covers mechanical characteristics of the MOST150 C-O Converter.

Table 6.1 Mechanical Characteristics

PARAMETER	VALUE	UNIT
Dimensions (H x W x D)	110 x 80 x 35	mm
Weight	180	g
Ambient Temperature Range	-40..+60	°C

The table below covers electrical characteristics of the MOST150 C-O Converter.

Table 6.2 Electrical Characteristics

PARAMETER	MIN	TYP	MAX	UNIT
Operating Voltage Range	8	12	30	V
Current Consumption (operation)		100		mA
Fuse SMD			1.8	A

Chapter 7 Revision History

Table 7.1 Customer Revision History

REVISION LEVEL & DATE	SECTION/FIGURE/ ENTRY	CORRECTION
Rev. 1.0 (06-10-15)	Initial Version	

Further Information

For more information on K2L automotive products, software, and MOST® development tools and modules, visit our web site: http://www.K2L.de. Direct contact information is available at: http://www.K2L.de/contact.

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